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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,175	07/09/2004	Peter Dietz	P04,0187	7857

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PATENT DEPARTMENT
6600 SEARS TOWER
CHICAGO, IL 60606-6473

EXAMINER

VARGAS, DIXOMARA

ART UNIT	PAPER NUMBER
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2859

DATE MAILED: 05/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/501,175

Applicant(s)

DIETZ, PETER

Examiner

Dixomara Vargas

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 July 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 07/09/04, 05/09/05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 12-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yui et al. (US 5,708,360 A) in view of Mansfield et al. (US 5,764,059 A).

With respect to claim 12, Yui discloses a magnetic resonance apparatus comprising: a basic field magnet for generating a basic magnetic field (Figure 4; #101), at least one eddy current generator (Figure 4, gradient coil power source #105 or RF transmitter #110), at least one electrically conductive structure, other than said eddy current generator, in which eddy currents caused by said eddy current generator can occur (Figure 4, shield coils #104 or RF coil #111), said eddy currents, interacting with said basic magnetic field to produce Lorentz forces, and a

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force generator attached to said at least one electrically conductive structure, said force generator being designed and controlled for applying forces counteracting said Lorentz forces to substantially preclude movement and deformation of said electrically conductive structure due to Lorentz forces from occurring (Columns 14-15, lines 63-67 and 1-30 respectively; Figure 4 #107).

In addition, Yui disclose the claimed invention as stated above except for the force applied been a mechanical force. However, Mansfield discloses applying mechanical forces counteracting said Lorentz forces (Column 3, lines 8-26). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply mechanical forces counteracting said Lorentz forces as taught by Mansfield with Yui's MRI apparatus for the purpose of avoiding the undesirable movement or vibration of the structure.

4. With respect to claim 13, Yui discloses said eddy current generator has a control unit associated therewith, and wherein said force generator comprises a control unit for operating said force generator dependent on operation of said control unit for said eddy current generator (Figure 4, #107 and #116).

5. With respect to claim 14, Yui discloses said eddy current generator comprises at least one coil arrangement for generating a magnetic gradient field (Figure 4, #103).

6. With respect to claim 15, Yui discloses said control unit of said eddy current generator comprises a predistorting unit for predistorting a control parameter supplied to said eddy current generator for reducing said eddy currents, and wherein said control unit of said force generator controls said force generator dependent on operation of said predistorting unit (Figure 4, #107).

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7. With respect to claim 16, Yui does not explicitly disclose said electrically conductive structure comprises at least a portion of a magnetic resonance apparatus component selected from the group consisting of a vacuum vessel of said basic field magnet, a cryoshield of said basic field magnet, and a coolant vessel of said basic field magnet. However, it is implicitly stated since is known in the art to provide some type of housing for the closed magnet system that constitutes cylindrical coils forming a bore to encase the magnet components in a desirable environment and provide a stabilized structure.

8. With respect to claim 17, Yui discloses said electrically conductive structure comprises at least a portion of a magnetic resonance apparatus component selected from the group consisting of a radio-frequency antenna and a radio-frequency shield (Figure 4, #111 and #112).

9. Claims 18-22 rejected under 35 U.S.C. 103(a) as being unpatentable over Yui et al. (US 5,708,360 A) and Mansfield et al. (US 5,764,059 A) in view of Yoshino et al. (US 5,617,026 A).

With respect to claims 18-22, Yui and Mansfield disclose the claimed invention as stated above in paragraph 3 except for said force generator comprises electrostrictive elements comprising electrostrictive fibers mounted for physical interaction with said at least one electrically conductive structure wherein said electrostrictive elements are spatially disposed at said electrically conductive structure with a density corresponding to a relative density of said Lorentz forces; and at least one sensor for detecting a magnetic field generated by said eddy currents wherein said at least one sensor is connected to said force generator, and wherein said force generator generates said forces for counteracting said Lorentz forces dependent on said magnetic field detected by said at least one sensor. However, Yoshino discloses electrostrictive

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elements comprising electrostrictive fibers mounted for physical interaction with said at least one electrically conductive structure wherein said electrostrictive elements are spatially disposed at said electrically conductive structure with a density corresponding to a relative density of said Lorentz forces; at least one sensor for detecting a magnetic field generated by said eddy currents wherein said at least one sensor is connected to said force generator, and wherein said force generator generates said forces for counteracting said Lorentz forces dependent on said magnetic field detected by said at least one sensor (Figure 7, piezoelectric #130 acting as sensor and electrostrictive element simultaneously). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use electrostrictive elements comprising electrostrictive fibers mounted for physical interaction with said at least one electrically conductive structure wherein said electrostrictive elements are spatially disposed at said electrically conductive structure with a density corresponding to a relative density of said Lorentz forces; and at least one sensor for detecting a magnetic field generated by said eddy currents wherein said at least one sensor is connected to said force generator, and wherein said force generator generates said forces for counteracting said Lorentz forces dependent on said magnetic field detected by said at least one sensor as taught by Yoshino with Yui and Mansfield's magnetic resonance apparatus for the purpose of sensing vibrations and inhibiting deformation and vibration of the system as taught by Yoshino (Abstract).

Response to Arguments

10. Applicant's arguments with respect to claims 12-22 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The additional prior art cited in the PTO 892 discloses MR systems with eddy current compensation systems.

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

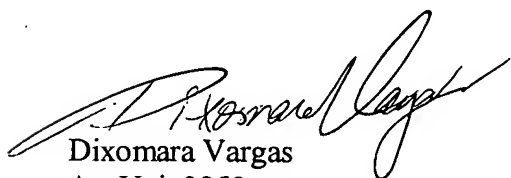
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dixomara Vargas whose telephone number is (571) 272-2252.

The examiner can normally be reached on Monday to Thursday from 8:00 am. to 4:30 pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on (571) 272-2245. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Dixomara Vargas
Art Unit 2859
May 1, 2006



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